IN THE CLAIMS

The following listing of claims replaces all previous versions, and listings, of claims in this application:

1. (Currently Amended) A chip transfer apparatus for transferring chips onto works, the apparatus comprising:

a first carrier for carrying chips thereon;

a second carrier for carrying works thereon;

a plurality of end-effectors configured to receive chips from said first carrier and to transfer the chips onto the works carried by the second carrier;

a first plurality of coaxial revolvers, each of which has one of said end-effectors, each of the coaxial revolvers configured to revolve around one stationary common axis independently; and

a plurality of servo drives, each configured to drive a respective one of said coaxial revolvers independently and to change a periodic revolving speed of the respective coaxial revolver,

wherein each of said end-effectors is affixed to a respective one of said coaxial revolvers and all of the end-effectors are distributed in one stationary common circle around said one stationary common axis,

wherein each of said end-effectors ~~rotates~~ revolves independently along the one stationary common circle in sequential order in a periodic motion by the action of said servo drives, and wherein the servo drives are configured to change a respective revolving speed of each of the end-effectors ~~is~~ independently ~~changed~~ during the periodic motion.

2. (Previously Presented) The transfer apparatus according to claim 1, further comprising:

a rigid frame including a first end and a second end, the first and second ends disposed oppositely along the axial direction;

a first plurality of coaxial bearings including a first coaxial bearing through a last coaxial bearing, each of the coaxial bearings respectively including an inner race and an outer race, the outer race of the first coaxial bearing being affixed to the first end of the rigid frame and the inner race of the last coaxial bearing being affixed to the second end of the rigid frame,

wherein each of said coaxial revolvers includes a respective one of the first through a next-to-last one of the coaxial bearings arranged in sequential order in the axial direction,

wherein the inner race of each of the first through the next-to-last one of the coaxial bearings is fixed to an outer race of an adjacent coaxial bearing, and

each of said end-effectors being connected to a corresponding coaxial revolver proximal to the inner race of the associated bearing, and the outer race of the associated bearing being activated by a rotational driving force of a corresponding one of said servo drives.

3. (Previously Presented) The transfer apparatus according to claim 1, wherein each of the servo drives is configured to individually and independently change the periodic revolving speed and phase control of a respective one of the coaxial revolvers.

4. (Previously Presented) The transfer apparatus according to claim 3, further comprising:

a measuring unit configured to measure a speed of the chip carried on the first carrier and/or a speed of the work carried on the second carrier,

wherein the servo drives operates based on a measurement from the measuring unit.

5. (Previously Presented) The transfer apparatus according to claim 3, wherein, even when the first and second carriers move in a forward direction at different speeds, each of the end-effectors receives a chip from the first carrier at substantially zero speed in the forward direction relative to the first carrier synchronized with the first carrier movement, and transfers the received chip onto a predetermined position of the work on the second carrier at substantially zero speed in the forward direction relative to the second carrier synchronized with the second carrier movement.

6. (Previously Presented) The transfer apparatus according to claim 5, wherein each of the first and second carriers is a rotating cylinder or a conveyor belt.

7. (Previously Presented) The transfer apparatus according to claim 1, wherein the chips are electronic parts, and

wherein the works are IC card parts or RF tag parts in a form of sheets.

8. (Previously Presented) The transfer apparatus according to claim 1, wherein each end-effector is further configured to receive the chip from the first carrier in synchronization with the first carrier such that the end-effector has substantially zero speed with respect to the chip in a forward direction in which the first carrier conveys the chip when the end-effector receives the chip, and

wherein each end-effector is further configured to transfer the chip onto a work conveyed by the second carrier in synchronization with the second carrier such that the end-effector has substantially zero speed with respect to the work in a second direction in which the second carrier conveys the work when the end-effector transfers the chip onto the work.

9. (Previously Presented) The transfer apparatus according to claim 1, wherein the end-effectors include a pneumatic mechanism.

10. (Previously Presented) The transfer apparatus according to claim 1, further comprising:

a second plurality of coaxial revolvers opposite the first plurality of coaxial revolvers, and a second plurality of servo drives configured to rotate the second plurality of coaxial revolvers about the one common axis,

wherein each of the second plurality of coaxial revolvers is distributed around the one common circle alternatingly with adjacent ones of the first plurality of coaxial revolvers.

11. (Previously Presented) The transfer apparatus according to claim 4, wherein the measuring unit includes a camera.

12. (Previously Presented) The transfer apparatus according to claim 4, further comprising:

a control unit configured to receive input from the measuring unit and to control the plurality of servo drives.

13. (Previously Presented) The transfer apparatus according to claim 2, further comprising a second plurality of coaxial bearings, the second plurality of coaxial bearings having a diameter smaller than the first plurality of coaxial bearings.

14. (Previously Presented) The transfer apparatus according to claim 1, wherein the servo drives include a motor operatively connected to a drive wheel.

15.—20. (Canceled)